The Rise and Fall of Alcohol Excise Taxes in U.S. States, 1933–2018

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ABSTRACT. Objective: Higher alcohol taxation is protective against alcohol-related morbidity and mortality. All states have specific (volume-based) excise taxes for alcohol that decrease if not adjusted for inflation. These taxes have diminished substantially in real terms since their inception after National Prohibition in the United States. The purpose of this study was to examine trends in the magnitude and frequency of changes in state specific excise taxes to document their erosion. **Method:** Alcohol excise tax data were examined for all 50 states from 1933 to 2018. Tax data were obtained from the Alcohol Policy Information System, Pacific Institute for Research and Evaluation, Wine Institute, and HeinOnline. Linear and logistic regression analyses were conducted for beer, wine, and distilled spirits taxes to examine trends in the frequency and inflation-adjusted magnitude of changes in taxes from the year of alcohol tax inception. **Results:** From 1933 until 1970, beer, wine, and distilled spirits tax rates increased in value compared with inception rates, but by 2018 alcohol taxes had declined 66%, 71%, and 70%, respectively, compared with their inception values. The erosion of taxes after 1970 was driven primarily by declines in the magnitude of tax increases through the 1970s and 1980s, followed by declines in the frequency of tax increases in subsequent decades. **Conclusions:** The value of alcohol excise taxes has declined since 1970 from both insufficient tax increases and later infrequent tax increases. Laws that index rates to inflation could sustain the public health benefit of reduced morbidity and mortality resulting from higher alcohol tax rates. (*J. Stud. Alcohol Drugs, 81,* 331–338, 2020)

EXCESSIVE ALCOHOL CONSUMPTION is responsible for approximately 88,000 deaths annually in the United States and, in 2010, resulted in $249 billion, or $2.05 per drink, in external costs (Centers for Disease Control and Prevention, 2015; Sacks et al., 2015). An extensive body of research demonstrates that increasing alcohol taxes is an effective method of decreasing excessive consumption of alcohol, youth consumption, and related harms such as traffic fatalities (Babor et al., 2010; Chaloupka et al., 2002; Elder et al., 2010; Wagenaar et al., 2009; Xuan et al., 2013).

Alcohol tax increases are passed on to consumers, resulting in shelf price increases of equal or greater magnitude than the tax itself (Siegel et al., 2013). Specific excise taxes are charged as a fixed-dollar amount per volume of alcohol rather than as a percentage of the retail price, so the value will decline with inflation unless they are periodically increased. However, neither the federal government nor states currently index alcohol excise taxes to inflation, which means that legislative action is required for alcohol taxes to keep pace with inflation and continue to offer public health benefits of lower alcohol-related morbidity and mortality. Specific excise taxes (subsequently referred to as *excise taxes*) are the predominant form of alcohol taxation in the United States and exist at the federal level and in all 50 states (National Institute on Alcohol Abuse and Alcoholism, 2019). Excise taxes for beer are present in all states, whereas states with government monopolies (government control of wholesaling and/or retail sales) on distilled spirits and/or wine typically have markup procedures but not excise taxes on those beverage categories.

The value of most state alcohol excise taxes today has declined since inception (since the first year of alcohol taxation in a given state following the 1933 repeal of National Prohibition in the United States), and few states have excise taxes equal to or greater in value than their rates at inception (Naimi et al., 2018). Furthermore, the value of alcohol excise taxes has declined by more than 30% since the early 1990s (Naimi et al., 2018). No recent study has examined the trends in alcohol excise tax rates throughout the entire post-Prohibition era nor has any recent study documented trends in magnitude and frequency of changes in alcohol taxes. Doing so can inform researchers who seek to identify factors underlying erosion of specific excise taxes. The purposes of this study are to examine trends in the magnitude and frequency of implementing excise tax-rate changes (either increases or decreases) among states and to assess trends in inflation-adjusted excise tax value to document the erosion of alcohol excise taxes.

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Method

Tax data sources

Data for beer and distilled spirits taxes from 1933 to 2007 and wine taxes from 1969 to 2007 were drawn from a database developed by Ponicki (2009) at the Pacific Institute for Research and Evaluation. Data for wine taxes from 1934 to 1947 were drawn from a Wine Institute publication (Wine Institute, 1948). Taxes for beer, wine, and distilled spirits for years 2003–2018 were obtained from the Alcohol Policy Information System (National Institute on Alcohol Abuse and Alcoholism, 2019). Wine taxes for years 1948–1968 were obtained from the Session Laws Library by HeinOnline (2019). All tax rates were inflation-adjusted to 2018 dollars using the Consumer Price Index (U.S. Department of Labor, 2019). Inception tax rates were defined as those present during the first year of alcohol taxation in a given state following the repeal of alcohol prohibition (Naimi et al., 2018). Taxes for wine and distilled spirits were collected only for states that privatize alcohol retail sales. States with government control of sales of distilled spirits or wine use a variety of markup procedures, so there is no comparable excise tax rate for those beverages in those states. Taxes for wine and distilled spirits from the state of Washington were excluded because this is a historical tax study and Washington privatized alcohol sales recently in December 2011. Beer taxes were included for all 50 states.

Trends in frequency and magnitude of tax changes

The magnitude of tax changes was measured by the dollar amount of change from the previous year. Every tax change was inflation-adjusted to 2018 dollars. Taxes were assessed on a per-drink basis by converting taxes on larger volumes of alcoholic beverages (e.g., excise taxes per gallon of beer) into equivalent taxes per standard U.S. drink, defined as 12 oz. of 5% alcohol-by-volume (ABV) beer, 5 oz. of 12% ABV wine, and 1.5 oz. of 40% ABV distilled spirits—all of which contain 14 g, 17.7 ml, or 0.6 oz. of ethanol (National Institute on Alcohol Abuse and Alcoholism, 2017). The frequency of tax increases and decreases was measured as the proportion of state-years (a *state-year* is defined as a single state during a single year) in which absolute excise tax rates were higher or lower relative to the previous year. To adjust for the clustering of repeated measures of the same state, generalized estimating equations was conducted to relate progressively later time periods to the frequency of tax changes with logistic regression analysis, and to the inflation-adjusted magnitude of tax changes with linear regression analysis. The same analyses were then conducted after excluding states that imposed ad valorem (based on a percentage of price) alcohol excise taxes to test whether the addition of ad valorem excise taxes could be an explanation for trends in excise taxes (National Institute on Alcohol Abuse and Alcoholism, 2019). Statistical analyses were conducted with SAS statistical software.

Results

Erosion of specific excise taxes during the study period

From 1933 to 1970 beer, wine, and distilled spirits specific excise taxes had risen in value by 28%, 5%, and 8%, respectively, in inflation-adjusted terms compared with inception rates, but then declined steadily to present levels (Figure 1). By 2018, compared with their inception rates, beer, wine, and distilled spirits excise taxes declined 66%, 71%, and 70%, respectively. Specifically, in 2018, the average tax rate was 31 cents per gallon of beer (inception rate $0.90), $4.25 per gallon of distilled spirits (inception rate $13.95), and 86 cents per gallon of wine (inception rate $2.91). For beer, tax erosion has been ongoing since the 1960s, and for distilled spirits and wine since the early 1970s. Compared with their 1970 rates, beer, wine, and distilled spirits specific excise taxes declined 73%, 72%, and 72%, respectively, by 2018.

As of 2018, more than 90% of specific excise taxes for beer, wine, and distilled spirits were valued at less than their inception rates, and more than two thirds of specific excise taxes were less than half of their inception rates (Figure 2). Only 8% of specific excise taxes for beer, wine, and distilled spirits were equal to or greater in value than inception rates. On a per-dollar basis, in 2018 the median values of alcohol taxes relative to inception were $0.27, $0.29, and $0.29 for beer, wine, and distilled spirits, respectively. Seventeen states had beer taxes that were less than $0.20 for every dollar of inception rates.

Frequency of tax changes

Throughout the study period, there were tax increases in 4.8% (200 state-years) of state-years for beer, 6.8% (176 state-years) of state-years for distilled spirits, and 5.3% (136 state-years) of state-years for wine (Table 1). For each of the three beverage types, this approximated about one tax increase for every 15 to 20 state-years (i.e., an average of 15–20 years for each state). However, there were tax decreases in only 0.6% of state-years (23 state-years) for beer, 0.5% of state-years (13 state-years) for distilled spirits, and 0.7 % of state-years (19 state-years) for wine. For each of the three beverage types, this approximated one tax decrease throughout the study period for fewer than half the states.

The frequency of tax increases for all three beverage types remained steady throughout the first 60 years of the study period but dropped substantially during the past 25 years (Table 1). Each of the first six decades of the study period had between 4.9% and 6.7% of state-years with a

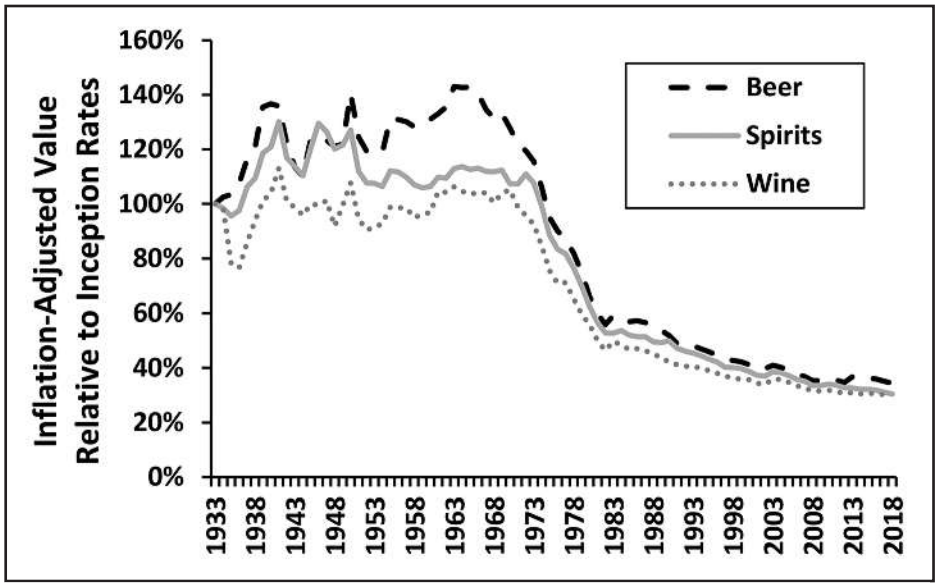

FIGURE 1. Average of state specific excise tax rates relative to inception rates[a] for beer, distilled spirits, and wine, 1933–2018. [a]All rates were inflation-adjusted to 2018 dollars.

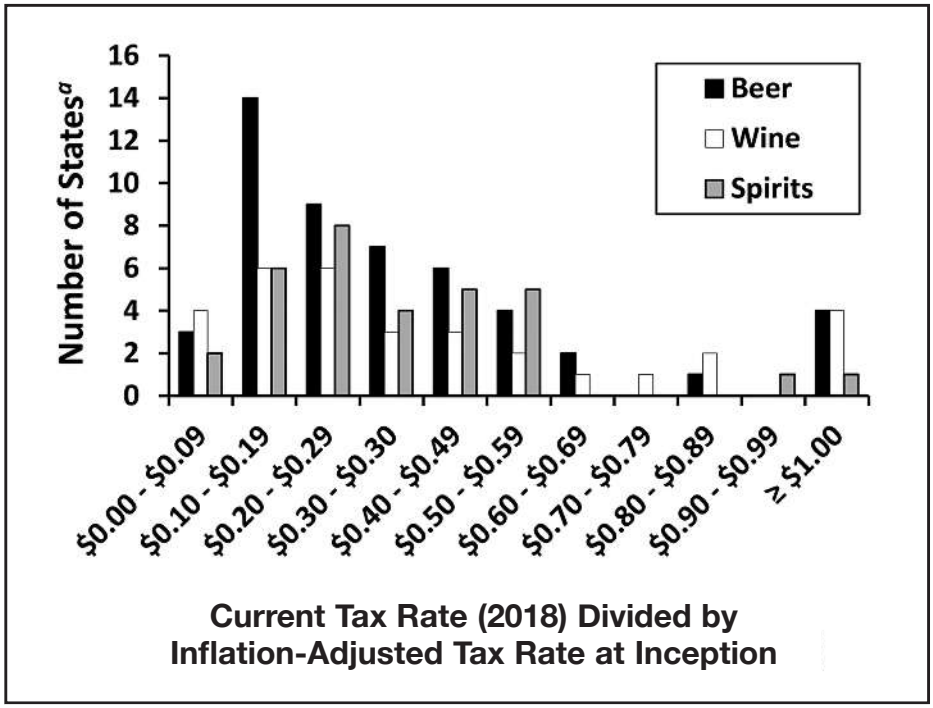

FIGURE 2. State distribution of the value of current (2018) specific excise taxes per dollar of inflation-adjusted (2018) inception rates by beverage type (beer, wine, and distilled spirits). [a]A total of 50 states for beer, 32 states for distilled spirits, and 32 states for wine (18 monopoly states were excluded for distilled spirits and wine).

beer tax increase, but then only 2.6% from 1994 to 2003, 1.4% from 2004 to 2013, and 0.8% for the 5 years from 2014 to 2018. There was a relatively high frequency (12% of state-years) of tax increases for distilled spirits during the first decade (1934–1943) followed by a slight decline in the following decades, but the most dramatic decline was during the last 25 years. For example, tax increases for distilled spirits dropped from 7.6% of state-years during the 1984–1993 period to 1.6% during the 2004–2013 period. The decrease in the frequency of tax increases for wine was just as substantial during the last 25 years of the study period as it was for beer and distilled spirits.

TABLE 1. Frequency and inflation-adjusted magnitude of state-level alcohol excise tax increases for beer, distilled spirits, and wine, by time period

	% of state years with an increase[a]			Mean inflation-adjusted per-standard-drink tax-increase ($)[b]		
Years	Beer (n = 4,158)	Spirits (n = 2,577)	Wine (n = 2,588)	Beer (n = 200)	Spirits (n = 174)	Wine (n = 136)
All years	4.8	6.8	5.3	0.04	0.05	0.04
1934–1943	6.7	12.0	7.9	0.06	0.07	0.08
1944–1953	6.3	9.9	6.5	0.09	0.09	0.07
1954–1963	6.3	7.9	7.2	0.05	0.04	0.04
1964–1973	4.9	9.0	4.8	0.03	0.06	0.05
1974–1983	6.5	6.1	6.1	0.01	0.02	0.02
1984–1993	6.0	7.6	7.3	0.01	0.02	0.01
1994–2003	2.6	4.4	2.8	0.01	0.02	0.02
2004–2013	1.4	1.6	2.2	0.03	0.03	0.01
2014–2018[c]	0.8	1.3	1.3	0.01	0.01	0.03

[a]A *state-year* is defined as a single state during a single year; [b]tax increases were inflation adjusted for 2018 dollars and converted from taxes on larger volumes of alcoholic beverages (e.g., excise taxes per gallon of beer) into equivalent taxes per standard U.S. drink, defined as 12 oz. of 5% alcohol-by-volume (ABV) beer, 5 oz. of 12% ABV wine, and 1.5 oz. of 40% ABV distilled spirits—all of which contain 14 g, 17.7 ml, or 0.6 oz. of ethanol; [c]5-year period.

There was a reduction in the odds of states increasing taxes for every 10-year increment from the earliest to the latest period for beer (odds ratio [OR] = 0.85, 95% CI [0.80, 0.91]), distilled spirits (OR = 0.81, 95% CI [0.76, 0.86]), and wine (OR = 0.87, 95% CI [0.80, 0.94]) (Table 2). There was no change over time in the odds of states implementing tax decreases over time for either beer or distilled spirits. There was, however, a reduction in the odds of states implementing a tax decrease for wine (OR = 0.73, 95% CI [0.59, 0.89]). Many tax decreases for wine were concentrated in the first 5 years of the study period (7 of 19 decreases or 37% of decreases) compared with beer (4 of 23 decreases or 17% of decreases) and distilled spirits (1 of 13 decreases or 8% of decreases). In an analysis of wine data that excluded the first 5 years of the study period, there was no change over time in the odds of states implementing tax decreases (OR = 0.92, 95% CI [0.76, 1.11]). In an analysis of all three beverage types restricted to states without alcohol ad valorem taxes, results were similar.

Magnitude of tax changes

On an inflation-adjusted basis during the study period, the average magnitude of each tax increase was $0.44 per gallon of beer, $4.24 per gallon of distilled spirits, and $1.08 per gallon of wine. For all three beverage types, this approximated 4–5 cents per standard drink. The average magnitude of each tax decrease was $0.29 per gallon of beer ($0.03 per standard 12 oz. 5% ABV beer), $4.14 per gallon of distilled spirits ($0.05 per standard 1.5 oz. of 40% ABV distilled spirits), and $1.66 per gallon of wine ($0.07 per standard 5-oz. glass of 12% ABV wine). Many of the tax decreases occurred within a year or two after an increase and by an amount matching the most recent increase (e.g., Georgia 1950–1951, Montana 1993–1994) (data not shown).

Substantial declines in the magnitude of each tax increase had occurred by the fourth or fifth decade of the study period (Table 1). For the first three decades, the average amount of each beer tax increase ranged from $0.05 to $0.09 per standard drink but was $0.01–$0.03 per standard drink during the following decades. A similar trend occurred for wine and distilled spirits but began a decade later. For each of the three beverage types, the decline in magnitude of tax increases occurred before the decline in frequency of increases (Figure 3).

The magnitude of tax increases and tax decreases both became smaller over time for beer, distilled spirits, and wine (Table 2). For every 10 years of the study period, beer tax increases declined by an average of 12 cents per gallon (1 cent per standard drink), distilled spirits tax increases declined by an average of 95 cents per gallon (1 cent per standard drink), and wine tax increases declined by an average of 29 cents per gallon (1 cent per standard drink). Because states that implemented ad valorem excise taxes may have had less incentive to raise volume-based excise taxes, we conducted the same analysis restricted to states without alcohol ad valorem taxes and found that the results were similar.

Discussion

To the best of our knowledge, this is the first study to examine data on the entire post-Prohibition history of the relative value of state-level alcohol-specific excise taxes in the United States, as well as the magnitude and frequency of specific excise tax changes in states. These taxes were not eroding during the entire 85-year study period, but rather this occurred during the last 50 years. Both the frequency of tax increases and the inflation-adjusted magnitude of tax increases declined throughout the study period, and

TABLE 2. Odds of alcohol tax changes, and inflation-adjusted magnitude of each tax change per standard drink, per 10-year increment from the earliest to the latest time period for beer, distilled spirits, and wine, 1934–2018

Variable	Odds of increasing the tax [95% CI]	Odds of decreasing the tax [95% CI][d,e]	Magnitude of each increase per standard drink ($)[f]	Magnitude of each decrease per standard drink ($)[d,f]
Beer				
All states	0.85 [0.80, 0.91]	0.95 [0.77, 1.18]	-0.011 [-0.016, -0.008]	-0.010 [-0.021, -0.001]
States without alcohol ad valorem taxes[a]	0.88 [0.83, 0.95]	0.93 [0.73, 1.17]	-0.013 [-0.019, -0.008]	-0.010 [-0.020, -0.001]
Spirits				
All license states	0.82 [0.77, 0.87]	1.11 [0.92, 1.34]	-0.011 [-0.015, -0.008]	-0.033 [-0.059, -0.008]
States without alcohol ad valorem taxes[b]	0.87 [0.82, 0.92]	0.98 [0.70, 1.39]	-0.011 [-0.016, -0.006]	-0.045 [-0.066, -0.023]
Wine				
All license states	0.87 [0.80, 0.94]	0.73 [0.59, 0.89]	-0.011 [-0.015, -0.007]	-0.020 [-0.028, -0.012]
States without alcohol ad valorem taxes[c]	0.93 [0.87, 1.02]	0.70 [0.54, 0.90]	-0.009 [-0.012, -0.005]	-0.020 [-0.029, -0.010]

Notes: CI = confidence interval. Odds ratios < 1 indicate reduced likelihood of a tax increase over each progressive decade. Negative values for magnitude of tax changes indicate reduced magnitude (i.e., closer to zero) over each progressive decade. [a]States excluded were Arkansas, Kansas, Kentucky, Maryland, Minnesota, North Dakota, Tennessee, Texas, and Vermont; [b]states excluded were Arkansas, Kansas, Kentucky, Maryland, Minnesota, Oklahoma, South Carolina, South Dakota, Tennessee, and Texas; [c]states excluded were Arkansas, Kansas, Kentucky, Maryland, Minnesota, North Dakota, South Carolina, South Dakota, Tennessee, and Texas; [d]results from tax decreases should be viewed with caution because there were a small number of them: 0.6% of state-years (23 state-years) for beer, 0.5% of state-years (13 state-years) for distilled spirits, and 0.7 % of state-years (19 state-years) for wine; [e]many tax decreases for wine were concentrated in the first 5 years (7 out of 19 decreases or 37% of decreases) compared with beer (4 out of 23 decreases or 17% of decreases) and distilled spirits (1 out of 13 decreases or 8% of decreases). In an analysis of wine data that excluded the first 5 years of the study period, we found no change over time in the odds of states implementing tax decreases (OR = 0.92, 95% CI [0.76, 1.11]); [f]tax changes were inflation adjusted for 2018 dollars and converted from taxes on larger volumes of alcoholic beverages (e.g., excise taxes per gallon of beer) into equivalent taxes per standard U.S. drink, defined as 12 oz. of 5% alcohol-by-volume (ABV) beer, 5 oz. of 12% ABV wine, and 1.5 oz. of 40% ABV distilled spirits—all of which contain 14 g, 17.7 ml, or 0.6 oz. of ethanol.

therefore both factors contributed to the erosion of alcohol taxes. During the initial period of erosion beginning in the 1960s and 1970s, legislatures began implementing smaller tax increases, which were insufficient to adjust for inflation. However, beginning in the 1990s there was also a dramatic drop in the frequency of legislatures enacting tax increases. The outcome is that alcohol taxes declined in value by two thirds during the study period.

The decline in alcohol taxes was primarily from erosion due to inflation, rather than actions by legislatures to enact tax decreases. Legislatively enacted tax decreases were rare, became smaller in magnitude throughout the study period, and did not become more frequent throughout the study period. Many of the tax decreases occurred within a year or two after an increase and by an amount matching the most recent increase, which suggests that many decreases were the result of either sunset clauses (the increase was set to expire) or political pressure that persuaded the legislatures to drop the tax rates by the same amount they had increased them.

The addition of alcohol ad valorem taxes (i.e., alcohol taxes based on a percentage of price, which have been implemented in some states) cannot explain why legislatures are selecting smaller relative values for tax increases and are increasing alcohol taxes less frequently, since observed trends were similar for states with and without alcohol ad valorem taxes. The rapid decline in alcohol taxes during the 1970s is partly explained by the rapidly rising inflation rate at that time. Numerous conditions within the broad political and economic environments may help explain erosion of alcohol excise taxes. For example, legislatures may have increased their willingness to tolerate deficits in their budgets. Shifts in political party control over government or anti-tax public sentiment may act as an impediment to alcohol tax increases. Alcohol excise taxes account for a much smaller percentage of government revenue than they once did (Cook, 2007), and therefore political leaders may be less inclined to take notice of eroding alcohol taxes if their budgets are maintained by a larger share of percentage-based taxes (i.e., general sales tax, income tax), which inherently keep pace with inflation.

It is likely that alcohol-related political, business, and advocacy developments contributed to the trends found in our study. The total number of U.S. breweries declined sharply

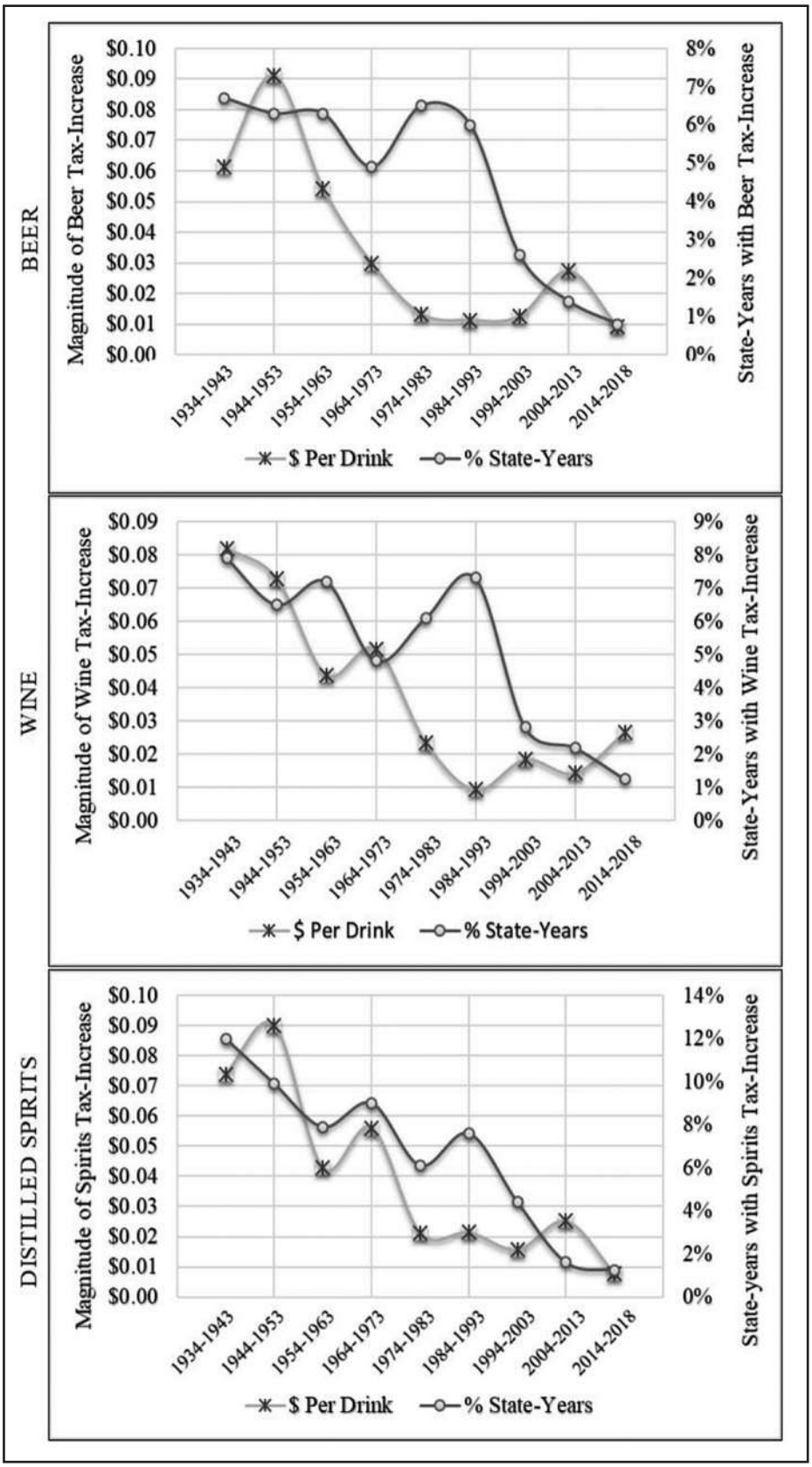

FIGURE 3. Average inflation-adjusted (2018) value and frequency of specific excise tax increases for beer, distilled spirits, and wine per standard drink, per decade, U.S. states

from 1950 to 1980, whereas the average size of breweries expanded rapidly and the share of U.S. beer production concentrated heavily toward the top five largest American beer producers (Poelmans & Swinnen, 2011). Company consolidation may have resulted in increased political power. During an interview, John De Luca, a former Wine Institute President from 1975 to 2003, talked about how important it was for the three beverage industries (beer, wine, and distilled spirits) to appear to support some degree of alcohol taxation so they could more effectively participate in the discussion about what is a reasonable tax increase and frame the policy issue, thereby substantially reducing the size of an impending tax increase (De Luca, 2007). There may have been particularly effective ways in which industry advocates framed alcohol taxes that contributed to declines in the magnitude of tax increases starting in the 1970s.

An extensive number of publications over the last two decades have documented sophisticated and well-organized approaches taken by the alcohol industry to influence public policy, approaches that include numerous frames and tactics (McCambridge et al., 2018; Savell et al., 2016). An historical review of how industry advocacy has shifted throughout the latter half of the 20th century could help identify factors underlying tax erosion and provide support for identifying the most effective anti-tax approaches used by the industry today. Identifying how tax advocacy has changed over time among the other involved parties (i.e., public health actors, legislators) might also lead to a greater understanding of the factors underlying tax erosion as some advocacy approaches may be more effective than others (Ramirez & Jernigan, 2017).

There are several limitations to this study. We did not incorporate state sales taxes, which may have been treated by legislatures as a replacement for higher alcohol excise taxes. Although we did not measure for changes in ad valorem (based on a percentage of price) alcohol excise taxes and those taxes may have been a replacement for higher volume-based taxes (assessed per unit of volume, e.g., per gallon of beer), we did conduct separate analyses that excluded states that currently have ad valorem alcohol excise taxes. Our study was limited to licensed state-beverages entities, since states with government monopolies on distilled spirits or wine use a variety of markup procedures, so there is no comparable excise tax rate for those beverages in those states.

The World Health Organization lists alcohol taxation as a "best-buy" policy approach for reducing alcohol-related harm because of its cost-effectiveness, feasibility, and low cost of implementation (World Health Organization, 2011). Alcohol taxes could be indexed to inflation to prevent further erosion. Public health advocates would benefit from indexing to inflation because, currently, alcohol tax advocacy can be likened to constantly being on defense in an athletic game in which the public health advocates are trying to prevent or minimize further losses. Indexing to inflation would allow future advocates to concentrate resources on increasing taxes above today's real value (i.e., play offense instead of defense). Otherwise, greater attention should be focused on ensuring that each tax increase is sufficient to adjust for inflation from its last increase or from inception even if achieving that adjustment requires a longer, more drawn out campaign than would be required for a smaller tax increase. Tax increases that are insufficient for inflation adjustment risk setting a new, lower standard for what is a reasonable tax. Public health advocates might benefit from uniting around idealized tax rates, which could be calculated based on historical taxes such as at inception (Naimi et al., 2018), the rates necessary for recouping public expenditures on alcohol-related harms (Blanchette et al., 2019; Shafer, 2014), or something else. Instead of using politically unpopular phrases like "tax increase," public health advocates might find more success using the phrase "inflation adjustment" to refer to a one-time tax increase.

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